

BRIEF REPORTS

BEHAVIORAL PREDICTIONS FROM HYPNOTIC RESPONSIVENESS SCORES WHEN OBTAINED WITH AND WITHOUT PRIOR INDUCTION PROCEDURES¹

JOHN C. RUCH, ARLENE H. MORGAN, AND ERNEST R. HTLGARD²

Stanford University

The Barber Suggestibility Scale and the Stanford Hypnotic Susceptibility Scale, Form A (SHSS) were administered to 80 high school students, half with imagination instructions and half with hypnotic induction instructions. The Stanford Profile Scale of Hypnotic Susceptibility, Form I was subsequently administered to test the predictive effectiveness of the scales. The Stanford Profile Scale has both different induction procedures and different item content from the Barber Suggestibility Scale and the SHSS, which are very similar in their test-suggestion topics. Correlations with the Stanford Profile Scale were much higher following prior testing under induction rather than imagination conditions, and induction conditions raised both objective and subjective scores above imagination conditions. Although both the Barber scale and the SHSS yielded similar results, some differences were noted. The subjective correction makes a greater difference for the Barber Scale than for SHSS scores, so that the subjective correction is to be recommended especially when the Barber scale is used.

Predictions of behavior in the laboratory from measures of individual differences serve both practical and theoretical purposes. Practically, such measures assist in equating control and experimental groups and in selecting those who have the requisite characteristics to serve appropriately in a given experiment. Theoretically, such measures permit studies of aptitude-treatment interactions and allow tests of the wider applicability of relationships uncovered in more specific situations. All of this seems very obvious, but when the same considerations have been applied to experiments dealing with hypnotic performances, they have become the basis for controversies over experimental design (e.g., Barber, 1967). The data to be reported provide empirical evidence bearing on some theoretical problems of individual differences in hypnotic responsiveness through parallel testing with two standard hypnotic scales given under two conditions, a set of imagination instructions and a more standard hypnotic induction technique. The four sets of resulting scores are then used to

predict the hypnotic (or hypnotic-like) behaviors called for on a more difficult hypnotic scale with quite different content.

There are some technical and statistical aspects in the comparisons between the two scales and the two procedures that are reported elsewhere (Ruch, Morgan, & Hilgard, in press). This report is concerned primarily with the two conditions of testing, and with the two scales, as their similarities and differences affect the prediction of performance on a subsequent scale with diverse content.

METHOD

Subjects

The subjects were 80 high school students of both sexes who responded to a newspaper advertisement in the summer of 1971 and participated in the experiments with the written consent of their parents. They received \$2.00 an hour for their participation. The subjects were otherwise unselected.

Hypnotic Scales

The first of the two scales used was the Barber Suggestibility Scale, as described by Barber (1965, 1969). It is a scale consisting of eight test suggestions, scored both objectively, from behavior observed and recorded by the experimenter, and subjectively, according to the subject's account of the reality of the experience in reply to questions in a post-response inquiry. Various antecedent condi-

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² Requests for reprints should be sent to Ernest R. Hilgard, Department of Psychology, Stanford, California 94305.

tions can be used, including or not including a standard hypnotic induction procedure given by Barber (1969, pp. 251-254).

The second of the two scales was the Stanford Hypnotic Susceptibility Scale, Form A (SHSS), a 12-test-suggestion scale (Weitzenhoffer & Hilgard, 1959). Normally this scale is given with one item (postural sway) as a waking suggestion, followed by an induction procedure including eye closure (scored as an item), followed by 10 subsequent suggestions. For purposes of comparison with the Barber scale, the SHSS was very slightly modified to be used without an induction procedure, and, for comparability, the first two items were omitted in some procedures, yielding a 10-point rather than a 12-point scale. To preserve this distinction, scores from the 12-point scale are abbreviated SHSS₁₂ in this article, while those from the 10-point scale are noted as SHSS₁₀. Details bearing on these procedures, including the intercorrelations of the different scores, are given in the other report (Ruch et al., in press). Also, for purposes of parallelism between the Barber scale and SHSS scoring procedures, a subjective scoring system was arranged for the SHSS, based on the use of the same wording as in the posttesting inquiry of the Barber scale.

Conditions Antecedent to Responding to Test Suggestions

The two procedures antecedent to administering the test suggestions can be described as *imagination conditions* and *hypnotic induction conditions*.

For the imagination conditions, the following statement was read to the subject prior to the test suggestions:

Today you will be given tests of imagination under normal conditions. You will not be hypnotized. The better you can imagine and the harder you try, the more you'll respond. Close your eyes now and try as hard as you can to concentrate and to imagine the things I tell you.

These instructions are slightly revised from those used by Barber and his associates as a noninduction to the scale (e.g., Barber & Glass, 1962, p. 222).

For the hypnotic induction condition, the induction recommended by Barber was used with the Barber Suggestibility Scale and the standard induction with the SHSS. These are very similar, using eye closure and suggestions of sleep.

Types of Score

The objective scores are those commonly used with the Barber Suggestibility Scale and the SHSS. The subjective scores, as ordinarily used by Barber and adopted for this purpose, are actually corrected objective scores, because the questions about subjective reality are asked only about items "passed." This forces a positive correlation between objective and subjective scores, because those low on objective scores cannot be high on subjective ones. However, the subjective score provides a useful correction for excessive compliance, as reported by the subject.

Criterion Score

The criterion measure used subsequently was the Stanford Profile Scale of Hypnotic Susceptibility, Form I, as described by Weitzenhoffer and Hilgard (1967). The test suggestions are preceded by a hand levitation induction in which there is no mention of sleep (by contrast with both Barber Suggestibility Scale and SHSS inductions). The induction procedure is followed by nine test suggestions (hand analgesia, music hallucination, anosmia to ammonia, recall of an earlier meal, hallucinated light, induced dream, agnosia for "house," arithmetic impairment, and a post-hypnotic verbal compulsion). These test suggestions overlap very little with the previous scales.

Experimental Design

Half of the subjects ($N = 40$) had two sessions with an induction, one with the Barber Suggestibility Scale and one with the SHSS. These were counterbalanced so that half had the Barber scale first and half had the SHSS first. The other half of the subjects ($N = 40$) had two sessions with imagination instructions, one with the Barber scale and one with the SHSS. No subject had both induction and imagination procedures. Because the order effects were insignificant, they are ignored in this report. Subsequently, all subjects were given the Stanford Profile Scale with its standard hand levitation induction. Details on reliability and interscore correlations are given in the Ruch et al. (in press) article.

PREDICTION OF SCORES ON THE STANFORD PROFILE SCALE

Hypnotic scales are designed to predict hypnotic (or hypnotic-like) behavior to suggestions not specifically sampled by the scales.

For that reason the Stanford Profile Scale was selected as the criterion scale.

There were actually four scores derived from each of the two scales to be used in prediction, two obtained under imagination conditions and two under hypnotic induction conditions. The correlations of each of these scores with the Stanford Profile Scale are given in Table 1.

Examination of the results in Table 1 shows that the two tests did not differ appreciably in their correlations with the Stanford Profile Scale criterion under imagination conditions, all correlations being low. Under hypnotic induction conditions the objective scores of hypnotic induction SHSS₁₀ correlated numerically higher than the objective scores of the Barber Suggestibility Scale, although with 40 cases the difference between .58 and .70 is not statistically significant. Both correlations increased in size for the same populations when the subjective correction was made. The hypnotic induction Barber scale correlation improved more through the subjective correction than the hypnotic induction SHSS₁₀. That such a difference between the scales was to be expected is supported by the finding that a significantly greater number of the Barber scale items have their scores corrected downward by the subjective correction than is the case for the SHSS (Ruch, Morgan, & Hilgard, in press).

It is not surprising that induction conditions predict the Stanford Profile Scale scores better than noninduction conditions, because the Stanford Profile Scale was always administered with an induction. However, the results are also a consequence of item content, for when either the Barber scale or the SHSS is repeated, once under imagination instructions

TABLE 1
CORRELATIONS WITH THE STANFORD PROFILE SCALE

Scores entering correlations	Stanford Profile Scale
Imagination conditions	
BSS	
Objective (N = 40)	.22
Subjective (N = 40)	.33
SHSS ₁₀	
Objective (N = 40)	.40
Subjective (N = 40)	.35
Hypnotic induction conditions	
BSS	
Objective (N = 40)	.58
Subjective (N = 40)	.70
SHSS ₁₀	
Objective (N = 40)	.73
Subjective (N = 40)	.76

Note. r_s are given with an induction procedure, for all groups.

and once under induction conditions, the correlations have been found to be higher than those reported here with a change of scale (Barber & Glass, 1962; Hilgard & Tart, 1966).

The fact that two scales with predominantly motor items (the Barber scale and SHSS) predict the scores on the more cognitive and more difficult Stanford Profile Scale as well as they do helps to define the domain of hypnosis. The importance of some kind of induction procedure in enhancing the prediction is also to be noted.

FACILITATION OF HYPNOTIC RESPONSES THROUGH INDUCTION PROCEDURES

Hypnotic induction procedures not only enhance the predictive significance of hypnotic scales but raise all the scores made on such tests over the kind of imagination instructions

TABLE 2
EFFECTS OF HYPNOTIC INDUCTION COMPARED WITH IMAGINATION CONDITIONS

Condition	Barber Suggestibility Scale		SHSS ₁₀	
	Objective scores	Subjective scores	Objective scores	Subjective scores
Induction				
\bar{X}	5.55	4.58	5.85	5.15
SD	2.05	2.45	2.90	2.97
Imagination				
\bar{X}	4.05	2.78	3.65	2.63
SD	2.21	2.25	2.32	2.38
M_{diff} (induction-imagination)	1.50	1.80	2.20	2.52
Significance of M_{diff} (two-tailed)	3.15	3.43	3.75	4.20
t				
p	<.005	<.001	<.001	<.001

Note. $N = 40$ throughout except as noted.

^a $N = 39$.

^b $N = 39$.

that we used (Table 2). These results support earlier findings of score increases with induction over imagination noninduction conditions (Barber & Calverley, 1968; Barber & Glass, 1962; Hilgard & Tart, 1966; Weitzenhoffer & Sjoberg, 1961).

DISCUSSION AND CONCLUSION

1. When used in predicting scores on the Stanford Profile Scale, the imagination scores were less successful than the hypnotic induction scores, the former correlations being in the range of .22 to .40, the latter in the range of .58 to .76, depending on the scores. The numerically highest correlations were with the subjective scores, which are essentially corrected objective scores.

2. Whatever the score (objective or subjective) the mean score obtained under hypnotic induction conditions was significantly higher than that obtained under imagination conditions on both the Barber Suggestibility Scale and SHSS. This finding agrees with prior reports and is challenged only by studies in which it has been claimed that task motivation instructions yield results comparable to hypnotic induction (Barber & Calverley, 1963, 1968). However, it is now known that task motivation instructions inflate scores owing to the pressure for social compliance; the scores are often corrected downward by the use of subsequent honesty reports more than the corrections introduced by subjective scores (Bowers, 1967; Spanos & Barber, 1968). Hence the fact that we have not used the criticized task motivation instructions is not relevant to the assertion that induction procedures enhance hypnotic responsiveness beyond noninduction procedures.

3. Suggestibility or hypnotic susceptibility scales are useful for a number of purposes, but it should be recognized that both the Barber Suggestibility Scale and the SHSS, Form A are elementary scales and limited in their samplings of the domain of hypnosis. If they cannot yield correlations with other scales higher than those obtained, it is not surprising that their correlations with other measures, such as scores on personality inventories, should be low. For more precise use in such connections, it is desirable to test more than once and to use scales of varied content. For example, if it is assumed that the SHSS, Form A and the Stanford Profile Scale are two samples of the hypnotic domain, then the correlation of .76 can be considered to be a kind of split-half reliability measure. A score

based on both tests would then increase in reliability according to the Spearman-Brown formula to .86, which would be more suitable for assessing where the individual stands in whatever abilities are involved.

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